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ABSTRACT

A study determined relationships between Army organizational variables and levels of soldier satisfaction and assessed correlates of attrition and battalion effectiveness ratings. It was based on a secondary analysis of data collected in the Army Life-78 Study, which considered relationships of organizational climate and unit effectiveness. Subjects were 8,140 personnel assigned to 60 battalions. Other administrative data considered were Unit Readiness Reports, Annual General Inspection Ratings, incidence of criminal activities, and measures of attrition. The most striking finding was that three types of satisfaction (job satisfaction, sense of equity from the Army, and overall satisfaction with the Army) were extremely closely related to variables of organizational climate and also very highly associated with several job characteristics. To a lesser, but still significant extent, satisfaction was a function of several types of endogenous Army life problems (salary, time off, etc.). Considerations of the potentially moderating variables of soldier coping resources and presence of spouse with the servicemember contributed little to an understanding of the relationship of predictors to satisfaction. Unit attrition rates were not found to be related to measures of unit effectiveness. Recommendations were made for methodological changes in future research. (YLB)

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Technical Report 478

CORRELATES OF MILITARY SATISFACTION AND ATTRITION AMONG ARMY PERSONNEL

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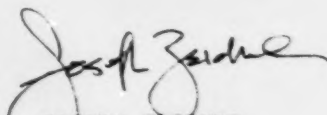
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One of the negative effects of the All Volunteer Force (AVF) has been the large number of soldiers who do not complete their first enlistment. Although the 38% attrition rate of those entering in FY 75 has abated somewhat, the problem of first term attrition continues to be of concern to the services and to Congress. Somewhat surprisingly, most of the losses occur during the post-training period (6-36 months into service). This is unusual since these soldiers were previously screened at time of entry into service and also by the very process of basic and advanced training, which included methods of eliminating those who are not adequately adjusting to service life.

ARI began an intensive investigation of this post-training attrition via a contractual effort (DAHC 19-77-C-0041) in 1977 with Advanced Research Resources Organization (ARRO). That effort included three phases: (1) an examination of the processes underlying attrition, (2) a report on the state-of-the-art in attrition, and (3) an examination of the relationship of intra-unit phenomena to adjustment and attrition.

The current report was prepared by the ARI Field Unit at Fort Harrison and by elements of ARI Headquarters building on the third phase of the ARRO work. It was conducted under the attrition research thrust of Army Project 2Q162722A791. We would like to thank Drs. Cooper, Goodstadt, and Kane of ARRO for their initial work in the analyses of the data and Dr. O'Mara of ARI, Headquarters for his role in conducting the main research which led to the present report.


JOSEPH ZEIDNER
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CORRELATES OF MILITARY SATISFACTION AND ATTRITION
AMONG ARMY PERSONNEL

BRIEF

Requirement:

To determine relationships between Army organizational variables and levels of soldier satisfaction as well as to assess correlates of attrition and battalion effectiveness ratings.

Procedure:

This study is based on a secondary analysis of data collected in the Army Life-78 Study. Subjects were 8140 personnel assigned to 60 (Combat Arms, Combat Support, or Combat Service Support) battalions stationed within the United States or Europe. In addition to the Army Life-78 survey a variety of administrative data (e.g., Unit Readiness Reports, Annual General Inspection Ratings, incidence of criminal activities, and measures of attrition) were considered.

Hypotheses tested were primarily suggested by Goodstadt, Yedlin, and Romanczuk (1978). Statistical analyses included simple Pearson Product-moment correlations, multiple correlations, and analyses of moderator variables.

Findings:

The most striking finding of the project is that three types of satisfaction (job satisfaction, sense of equity from the Army, and overall satisfaction with the Army) are extremely closely related to variables of organizational climate (e.g., motivation and communication) and also very highly associated with several job characteristics. To a lesser, but still significant extent, satisfaction is a function of several types of endogenous Army life problems (e.g., salary, time off, etc.).

Consideration of the potentially moderating variables of soldier coping resources and presence of spouse with the servicemember contributed little to an understanding of the relationship of predictors to satisfaction.

Unit attrition rates were not found to be related to measures of unit effectiveness, although several methodological reasons were suggested to account for this unusual finding.

Utilization of Findings:

This study suggests that at least three dimensions of satisfaction among military personnel are a function of organizational variables over which the Army likely exerts some influence. It may well be that modification of these organizational variables would effect levels of attrition as well.

Secondly, the study includes recommendations for methodological changes in future research in the area.

CORRELATES OF MILITARY SATISFACTION AND ATTRITION AMONG ENLISTED ARMY PERSONNEL

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CORRELATES OF MILITARY SATISFACTION AND ATTRITION
AMONG ENLISTED ARMY PERSONNEL

INTRODUCTION

Since the introduction of the All-Volunteer Force in 1973, both the Armed Services and Congress have devoted much attention to the operational problems and costs associated with attracting and retaining sufficient numbers of qualified personnel to man and maintain the force. In large measure, this concern has been prompted by awareness of critically high rates of attrition. Recent Army data, for example, indicate that nearly 40% of entering recruits are discharged prior to the end of their obligated service. Elevated rates of loss are costly from at least two perspectives: (1) Failure to fulfill the contract of service results in unrequited organizational investments in training, recruiting, and ultimately in veterans' benefits (Comptroller General, 1980) and (2) High attrition rates increase accession requirements, since the Army must replace manpower losses through more intensive recruiting efforts. Granted that the civilian manpower pool from which to draw new servicemembers will continue to diminish and that needed personnel strengths or qualification standards are unlikely to be reduced, recruiting in the 1980's will probably produce even greater numbers of personnel at high attrition-risk, thus further complicating the Army's already severe retention problems.

The services have for some time attempted to control the extent and/or the timing of attrition through the development of screening devices and through "marginal performer" programs (Comptroller General, 1975; Department of Defense, 1978). These latter programs permit unit commanders considerable discretion in discharging early many individuals who adapt poorly to service life.

Another strategy the services have adopted to alleviate the attrition problem has been to research the correlates and potential sources of attrition. The body of literature reflecting this effort, along with nonmilitary research on turnover, is extensive.

Among the variables studied, several are typically related to low rates of voluntary turnover in non-military jobs: age (Downs, 1967; Ley, 1966; Roach & Waters, 1976); congruence between vocational interests and job content (Boyd, 1961; Ferguson, 1958; Mayeske, 1964); limited family size and family responsibilities (Guest, 1955; Knowles, 1964; Minor, 1958; Robinson, 1972); overall satisfaction with the content of the job (Koch & Steers, 1978; Draut, 1975; Waters, Roach, & Waters, 1976); intentions to stay in the organization (Newman, 1974); and feelings of loyalty to the organization (Porter, Crampon, & Steers; Steers, 1977).

In contrasting military and civilian research on attrition, two points should be kept in mind. First, turnover research has focused almost exclusively on voluntary departures thereby minimizing the role of the organization in the attrition process. More than in civilian employment, Army managerial prerogatives are a crucial component of turnover. Soldiers, unlike their civilian

counterparts, cannot just quit their job. The Army largely decides whether the soldier is allowed to leave and the conditions under which he or she may leave.¹

Not only does turnover entail somewhat dissimilar processes in the two settings, analyses of it in the military and non-military workplace have typically been characterized by quite different emphases. The military has focused primarily on individual-level variables as precursors of attrition while the civilian literature has tended to explore organizational parameters (e.g., job characteristics and organizational climate) as well as personal characteristics of attriting employees. Nevertheless, research findings in the two sectors reveal some agreement. For example, in both cases, family obligations (Mobley, Hand, & Logan, 1977); expectations of staying in the job (Mobley et al., 1977); intentions to stay on the job (Landau, Somer, & Lau, 1978); organizational commitment (Landau, 1979); and satisfaction (Landau, 1979) seem to be salient variables in attrition.

A recent report by Motowidlo, Dunnette, and Rosse (1980) suggests that variety, meaningfulness, and satisfaction may also be related to soldiers' intentions to reenlist.

While manpower researchers have identified several significant correlates of attrition, there are clearly methodological shortcomings in their efforts. Porter and Steers (1973), in an extensive review of past studies on attrition, concluded that the research generally has relied too heavily on close-ended questionnaires which delimit full consideration of the factors contributing to the decision to leave a job. Porter and Steers also found that most studies collected attitudinal data after termination, thereby possibly confusing the variables causing attrition and those resulting from it. The absence of control groups is another common problem. Finally, an issue may be raised with the tendency of researchers to investigate isolated variables as they relate to attrition. This approach has yielded a conglomerate of findings on attrition which are difficult to integrate. Moreover the various studies have each explained only a very limited amount of variance. For example, measures of overall satisfaction rarely account for more than 16% of the variance in attrition; behavioral intentions generally explain less than 24% of the variance and satisfaction with job content tends to predict less than 14% of the turnover variance. Interviews with first-term enlisted personnel, including soldiers undergoing discharge, noncommissioned officers, and company and battalion commanders at two Army installations, led these researchers to propose a progression of stages, behaviors, and decisions involved in the attrition process. The description is summarized by them as follows:

The data reveal that the process leading up to a discharge decision begins when an individual enlisted person experiences or manifests "problems." In this context, "problems" may involve personal difficulties (e.g., financial problems, family or marital problems), work related difficulties (e.g., inability to perform satisfactorily, problems within working relationships and with supervisors), or discrepancies in values between the individual and the organization

¹ Nevertheless there is evidence that some "marginal performer" discharges are in reality initiated by the individual's own desire to leave (Department of Defense, 1978 and Goodstadt et al., 1978).

(e.g., the individual expresses opinions or manifests behaviors that are viewed negatively by superiors in the unit).

To the extent that such experiences cannot be successfully managed by the individual, one or both of the following reactions are elicited:

- 1) the individual requests an early discharge from his superiors; and
- 2) the individual's performance degrades and disciplinary infractions are in evidence.

There is no fixed sequence of these reactions. Since requests for discharges are typically rejected, individuals often engaged in case-building--infractions of various sorts or other behaviors that call attention to their plight and impel the chain of command to take discharge action. Frequently, requests for discharges follow performance decrements and disciplinary problems as the individual comes to perceive that he/she cannot or will not be able to cope with continued life in the Army. However, not all enlisted personnel overtly make requests for early discharges.

. . . recognition of the individual's problem by the chain of command occurs in three ways. The command may learn of an individual by virtue of his making a direct request for discharge or by virtue of its own "sensing" mechanisms. That is, NCO's may bring the individual and his/her situation to the attention of command as they seek advice in attempting to deal with the problem. In addition, command may learn of an individual's problems through information and requests from outside agencies (e.g., police, local merchants, credit bureaus).

Once the chain of command becomes aware of the fact that a problem exists, preliminary diagnosis or problem definition takes place. This problem usually involves gathering of data concerning the individual through interviews, discussions with peers, review of records or other activities in an effort to determine the cause of the problem. (Goodstadt, Yedlin, & Romanczuk, 1978, p. 17-19).

Thus these researchers conceptualize attrition as a complex process involving several distinct activities by both leaders and subordinates who will attrit.

The current study is designed to explore the relation of post-training attrition to soldier satisfaction and to organizational variables. The model of attrition studies is basically that suggested by Goodstadt et al. (1978). This focus was selected to provide a more comprehensive and practical look at the problem than most other approaches which have considered only attrition during training (despite the fact that approximately 60% of the attrition of first term personnel occurs after training) and have looked at relatively static, intra-individual predisposing factors such as education. The relationship between organizational climate and soldier satisfaction as well as their respective relationships to attrition have been little researched despite the fact that these classes of variables are more likely fluid and subject to modification than are traditional intra-individual characteristics such as education, race, etc. Awareness that the manpower pool from which the Army must draw in

the future will decline substantially suggests that it will not be feasible to reject many candidates despite their personal characteristics which make them at high risk for attrition. Hence, research on preservice stable precursors of attrition has limited application to resolving the attrition problems. Action to correct attrition problems must concentrate primarily on organizationally modifiable variables such as services provided to soldiers, job satisfaction, entitlements, etc. This study is an early effort to evaluate the relationship of some of the variables which may decrease attrition rates and which are under organizational control.

METHOD

Data analyzed in the project were collected as part of the Army Life-78 Study (O'Mara, 1979) which considered the relationships of organizational climate and unit effectiveness. The current study is a secondary analysis of many of variables assessed by O'Mara in that project. While the major goal of the study was to explore research hypotheses suggested by Goodstadt et al. (1978), data were gathered with a survey instrument not designed for this purpose. Certain variables of interest were thus measured only indirectly.

Subjects for the research were 8140 military personnel assigned to 60 battalions stationed in either the continental United States or Europe and serving in Combat Arms, Combat Support, or Combat Service Support units. Each company in each battalion was tasked with providing 20 E1 to E4 personnel and 10 non-commissioned officers, and 5 commissioned officers to serve as survey participants. Five additional officers were also furnished by each battalion as subjects. Battalions also provided the following administrative information based on the five quarters preceding the survey:

1. percentage of "satisfactory" ratings on the Army Training and Evaluation Program (ARTEP), reflecting combat readiness;
2. Unit Readiness Reports dealing with overall, personnel, equipment, equipment serviceability, and training readiness;
3. percent of satisfactoriness on the Annual General Inspection (AGI);
4. rate of expeditious discharge--calculated by summing numbers of expeditious discharges for each of the five preceding quarters divided by five and divided by the five-quarterly average unit enlisted strength;
5. rates of criminal actions including court martial, absence without leave (AWOL), desertion, Article 15, violent crime, crime against property, and hard drug/marijuana conviction.
6. ratings of effectiveness of battalions made by the Commanding General, the Assistant Division Commander, and the Brigade Commander. Independent judgments were made on a 13-point rating scheme. Standard score equivalents of the three were then combined into a single score.

The survey items themselves were of a close-ended multiple choice nature. In most cases responses involved 5-point assumed Likert scales.

The survey variables analyzed were (Appendix A):

1. Satisfaction--Responses to questions: "All in all, I am satisfied with my job"; "In general, I feel that I have gotten a fair deal from the Army"; and "All in all, I am satisfied with the Army."
2. Characteristics of the Job--Three conceptually important characteristics were studied--variety, meaningfulness, and the degree to which the person has control over when and how his work is accomplished. Each was measured independently by summing three survey items. (It should be noted, however, that scores on the three job characteristics proved highly correlated--the median correlates between scales being approximately .53.)
3. Organizational Climate--O'Mara (1979) derived four factor-analytically based dimensions of climate. Scores on these factors were computed for each subject. These are defined as:
 - a) the communication scale, which deals with the adequacy and openness of the information in the unit. The highest loading item on this scale is "Decisions are made in this unit at those levels where the most adequate information is available";
 - b) the motivation scale measuring the degree to which the individual has a sense of accomplishment in his work. A typical item from the scale is "I look forward to coming to work every day";
 - c) the unit standards scale estimating the degree to which the person perceives the unit as emphasizing high standards. "My unit is respected on this post" is an item in this scale; and
 - d) the dedication scale consisting of a single item--"I want to contribute my best effort to the unit's mission and my assigned tasks."
4. Training Expectations--The survey instrument contained three items which appeared to tap servicemembers' anticipations of the Army prior to entry. These questions estimate the congruence between earlier training and current job. The three questions are: "Is your current duty MOS the same as your primary or alternative MOS?"; "Were you trained in the specialty you asked for when you enlisted?"; and "I enlisted in the Army to receive special training or obtain a skill."
5. Army Life Problems--Several types of situational problems were identified in the questionnaire such as safety for oneself, possessions, and family; ability to live within one's salary; availability of adequate health care for dependents, etc.
6. Coping Resources--Two scales were constructed to assess the respondent's ability to handle the problems he faced. The first scale, containing eight items, concerns perceived extent of available external resources to augment one's adjustment. These resources included interested, friendly NCOs and officers. The second scale has four items and measures the degree to which the individual possess internal or

personal resources for handling problems and tends to confront rather than avoid problems. An example of an item in this scale is "I enlisted in the Army to get away from money or financial problems." Respondents were dichotomously scored on each of the scales as above or below the median.

RESULTS

Findings of this study will be reported under a series of research questions, most of which were posed by the Goodstadt research team (1978).

Descriptive Statistics for the Variables

Table 1 presents the means and standard deviations for the major independent and dependent variables in this study. In reviewing these findings it is well to keep in mind that no direct significance can be ascribed to them since norms for a comparable group (civilian or military) have not been calculated to permit a contrast.

Mean scores on job characteristics seem to suggest that the average soldier in this sample finds his job fairly interesting, affording some degree of autonomy, and rather meaningful. Means on climate scores are generally moderate as well, with the exception that the score on dedication is substantially above the hypothetical scale mean of 2.5 on these 5 point scales. Again, the mean ratings on the measures of Army life problems and satisfaction are within an expected neutral range. Subjects, on the whole, appeared to be neither extremely distressed nor extremely pleased.

Statistical Analyses

Statistical analyses for the project include Pearson product-moment correlations and stepwise multiple correlations (R). Since the latter statistic may be unfamiliar to some readers of this report, an introduction to its rationale is provided in Appendix B.

Findings for Hypotheses

Hypothesis 1. Satisfaction with one's job, satisfaction with the Army in general, and one's sense of fair play from the Army are functions of the characteristics of one's job, the organizational climate of one's unit, and the absence of problems associated with Army life.

Relationships between these predictors and criteria are summarized on Table 2. In this table predictors are ordered on the basis of successive increases in R with job satisfaction.

Table 1 •

Means and Standard Deviations of
Major Variables in the Study

Variable	Descriptive statistics	
	Mean	Standard deviation
Job characteristics:		
Control	3.07	1.02
Variety	3.08	1.03
Meaningfulness	3.68	.99
Climate:		
Motivation	2.63	1.04
Communication	2.70	.92
Dedication	3.96	1.18
Unit standards	3.39	.84
Army life problems:		
Time off	2.48	1.34
Salary	2.79	.99
Safety on post	3.05	1.38
Family is safe	2.97	1.27
Possessions are safe	3.47	1.30
Safety in living quarters	3.47	1.30
Health care	3.33	1.22
Satisfaction:		
Job satisfaction	2.71	1.43
Fair deal in Army	2.83	1.40
Satisfied with Army	2.64	1.30
Expeditionary discharges:		
Rate	.75	.58

Table 2

Multiple Correlations of Several Predictors with
Each of Three Measures of Satisfaction

Predictors	Satisfaction		
	Job satisfaction	Fair deal in Army	Satisfied with Army
Job characteristics			
Control	.44 (.44)	.39 (.39)	.32 (.32)
Variety	.49 (.36)	.43 (.30)	.38 (.29)
Meaningfulness	.51 (.35)	.42 (.29)	.37 (.25)
Organizational climate			
Motivation	.63 (.63)	.52 (.52)	.50 (.50)
Communication	.64 (.45)	.53 (.34)	.52 (.41)
Dedication	.64 (.32)	.55 (.40)	.53 (.33)
Unit standards	.64 (.33)	.55 (.33)	.53 (.31)
Army life problems			
Time off	.28 (.28)	.30 (.30)	.27 (.27)
Salary	.32 (.20)	.38 (.27)	.38 (.22)
Safety on post	.34 (.16)	.43 (.19)	.34 (.24)
Safety of deps	.36 (.19)	.45 (.21)	.42 (.20)
Dep health care	.37 (.11)	.41 (.16)	.40 (.15)
Safety in qtrs	.38 (.19)	.45 (.21)	.42 (.13)

Note: All multiple and simple correlations are significant at $p \leq .01$. Each predictive variable is followed by the multiple correlation of it and preceding predictors in the class with the criterion. Figures in parentheses are the simple correlations of the particular predictive variable with the criterion. The order of the variables within a class in the multiple predictive correlation may be determined by ranking them on the basis of increases in the multiple correlation coefficient.

This multifaceted hypothesis received substantial support. As indicated by the R's, however, increasing the number of variables within a predictor class did little to further strengthen the relationship between the two sides of the equation. This is likely due to strong relationships among variables within the three superordinate predictor classes. Nevertheless the simple and multiple correlation coefficients are substantial.

Hypothesis 2. Army life problems further exacerbate the negative effects of job characteristics, organizational climate, and job expectations on satisfaction.

Job characteristics, organizational climate measures, and the measures of training expectations were entered into each multiple correlation equation using the stepwise procedure. After all significantly correlating predictor variables were entered into the equation, a second equation was derived simultaneously using these predictors and Army life problems (e.g., time off, pay). The hypotheses can be evaluated by the degree that these Army life problems predict each measure of satisfaction beyond the significant correlation already achieved by the earlier one. In other words, does knowing about one's Army life problems predict level of satisfaction significantly better than simply knowing his job characteristics, organizational climate, training expectations?

Table 3 contains the multiple correlations for the two equations and the difference R between them. Inclusion of Army life problems increased the prediction of two of the three satisfaction measures. However, the improvements in the multiple correlation coefficients were small indeed and of little applied value.

Table 3

Satisfaction as a Function of a Set of Predictors
with and without Army Life Problems Included as a Predictor

Predictors	Satisfaction		
	Job satisfaction	Fair deal from Army	Satisfied with Army
Job characteristics, organizational climate, and expectations	.67	.57	.55
Job characteristics, organizational climate, expectations, and Army life problems	.67	.60	.57
Differences in R	.00	-.03*	-.02*

*R significant at $p \leq .05$.

Note: Simple r's of job expectations with the three types of satisfaction are all .22.

This hypothesis, therefore, was very weakly supported. Army life problems, although significant predictors of satisfaction in their own right, do not predict satisfaction to any useful extent beyond that already predicted by job characteristics and organizational climate.

While results of the analyses argue strongly for hypothesis 1 and at least weakly for hypothesis 2, it should be remembered the first hypothesis suggests causality whereas the statistical analyses only demonstrate correlation. Nevertheless it is quite plausible to assume the direction of the statistical association is as Goodstadt posits.

Moderators of Satisfaction

The next two hypotheses concern the possible role of moderator variables. Such variables further modify the relationship between predictor and criterion variables.

Hypothesis 3. Coping resources moderate the relationship between problem-engendering conditions and satisfaction.

Goodstadt et al. (1978) suggests that soldiers with higher levels of internal and external resources would be more likely to cope effectively with problems and thus be less adversely affected by them. Therefore, the multiple correlations between overall problem-engendering atmospheres (i.e., dysfunctional organization climate, poor working conditions, Army life problems, and disconfirmed training expectations) and types of satisfaction would be expected to be lower for individuals with high levels of these internal and external resources than for individuals with lower levels of these resources since such resources would be expected to act as a buffer to these adversities.

To test this hypothesis, separate regression equations were derived for individuals above the median and below the median on each coping scale. Tables 4 and 5 respectively display the correlations between problem engendering atmospheres and types of satisfaction for those high and low on the coping scales.

Amazingly the results are precisely in the opposite direction predicted! The association between dysfunctional conditions and types of military satisfaction is stronger among those who are high in coping resources, be they external or internal. Thus the hypothesis is not resolved in favor of Goodstadt's contentions. While the differences in R's are small they are significant and provide some stimulus for further investigation of the moderating role of coping resources in the relationship of problem-engendering atmosphere and satisfaction.

Hypothesis 4. Poor job conditions, dysfunctional organizational climate, disconfirmed training expectations, and Army life problems have differing impacts on the satisfaction of single and married enlisted personnel.

Table 4

Differences in the Predictability of Satisfaction
when Available External Coping Resources are Considered

Subgroup	Satisfaction		
	Job satisfaction	Fair deal from Army	Satisfied with Army
Below the median on the external coping scale	.57	.52	.48
Above the median on the external coping scale	.65	.57	.55
Differences in R	-.08*	-.05*	-.07*

*R significant at $p \leq .05$.

Table 5

Differences in the Predictability of Satisfaction
when Internal Coping Resources of Respondents are Considered

Subgroup	Satisfaction		
	Job satisfaction	Fair deal from Army	Satisfied with Army
Below the median on the internal coping scale	.62	.55	.53
Above the median on the internal coping scale	.72	.64	.60
Differences in R	-.10*	-.09*	-.07*

*R significant at $p \leq .05$.

It was hypothesized that poor living and working conditions would exert a particularly adverse effect on soldiers who were married and living with their spouses, since the family would also be affected by these conditions. Thus, the correlation between the predictors and satisfaction should be higher for married soldiers than for soldiers who were either unmarried, divorced, widowed, or separated.

To test this hypothesis, separate multiple correlation coefficients were derived for the two groups. The results are presented in Table 6. As predicted, the satisfaction of soldiers with families is more a function of problem-engendering conditions than is the satisfaction of those without families. Nevertheless the differences in R are small.

Table 6
Differences in the Predictability of Satisfaction
when Presence of Spouse is Considered

Subgroup	Satisfaction		
	Job satisfaction	Fair deal from Army	Satisfied with Army
With spouses present	.78	.75	.72
No spouses or no spouse present	.70	.61	.59
Differences in R	.08*	.14*	.13*

*R significant at $p \leq .05$.

In considering the role of coping resources as a moderator, it is important to bear in mind that this study has not shown that servicemembers with more or less coping skills are necessarily more or less satisfied but that the role of coping skills may be different in moderating the relationship between satisfaction and problem-engendering conditions. Thus those servicemembers with good general problem-solving skills are perhaps more frustrated by inequities in the Army than those who are less self-reliant.

Additional Analyses

In an attempt to understand the factors correlated with unit expeditious discharges, two other minor analyses, not specified by Goodstadt et al., follow:

Unit effectiveness ratings. The cumulative ratings of battalion effectiveness given by the Commanding Generals, Assistant Division Commanders, and Brigade Commanders were correlated with expeditious discharges. None of the correlations was statistically significant.

Unit means of the individual-level variables. To determine whether there were additional significant correlates of attrition, battalion means for all variables previously studied were correlated with the expeditious discharge rates. Only one correlation was significant ($r = .25$)--the rate of criminal actions in the unit. (Other correlations ranged from .00 to .19.) Such a

finding is clearly reasonable and has been reported in the past. Some of the relationship is likely due to soldiers involved in criminal actions themselves being separated prior to normal discharge. Both criminal actions and attrition are perhaps both related to a common underlying factor.

DISCUSSION

The first section of this discussion presents an overview of the descriptive analysis of the variables used in the research. Next hypotheses generated by Goodstadt on satisfaction are evaluated in light of the results of the data analysis. Lastly some recommendations for future research are presented.

Even in cursorily reviewing the mean ratings presented in Table 1, one is struck by the absence of any clear focus of problems for this sample of soldiers. No single set of problems or aspect of Army life assessed by this instrument was especially disconcerting to the average soldier. Considering the diversity of the sample, this finding may not be surprising. Analysis of specific subgroups, e.g., individuals with different backgrounds or those with different military jobs, might have revealed specific problems for each subgroup but the present heterogeneous group does not.

The component of the Goodstadt model best supported by the data and by prior research concerns variables correlated with satisfaction (cf. Locke, 1976, for a review of the satisfaction literature). Satisfaction with the Army in general, satisfaction with one's job, and satisfaction with the equity of Army treatment were highly related to organizational climate, job characteristics, Army life problems, and disconfirmed training expectations.

Multiple correlations of all these predictive variables with the three types of satisfaction are as follows:

$R^2_{\text{predictors, job satisfaction}} = .67$

$R^2_{\text{predictors, fair deal from Army}} = .60$

$R^2_{\text{predictors, satisfied with Army}} = .57$

These variables together account for between one-third and almost one-half (from 32% to 45%) of the variance in the satisfaction measures. Considering the fact that the survey instrument used in this research was not developed expressly for this purpose, the identification of a number of important predictors of satisfaction is noteworthy.

In comparing the multiple correlations between these predictor variables and the satisfaction measures (cf. Table 2), it is apparent that the climate measures yielded the highest correlations with satisfaction. The second most important set of predictors was job characteristics. The finding that climate and job characteristics were more predictive of Army satisfaction than were Army life problems or expectations may to some extent be a function of the measures used. The measures of climate were factor scores. The measures of job characteristics were the mean scores on sets of only three items each. Army

life problems were measured using a series of single items, which were less reliable than the other two types of measures. The greater reliability of the climate and job characteristic scales may account for their high correlations with satisfaction. Nevertheless this research highlights a very strong correspondence of three types of satisfaction with both organizational climate and salient job characteristics.

Increased levels of satisfaction with the Army are likely to result from changes in soldiers' jobs and Army rules and policies, factors more under Army organizational control than personal and lifestyle problems. At the present time, however, methodological artifacts cannot be dismissed since the variables were likely not all measured equally well. Nonetheless, even if possible methodological artifacts have some merit, the multiple correlation differences on Table 6 should be considered. A possible inference from these findings is that if the rates of married enlisted personnel increase in the future, these life style problems will become more at issue.

Moderating variables. Two variables--coping resources and marital status--were hypothesized to moderate the relationship between the predictor variables and satisfaction. Relationships of coping resources to satisfaction were opposite to the direction of the prediction but are thought-provoking. The marital status hypothesis was supported although somewhat weakly. Even though better tests of these hypotheses are feasible, further research on the role of moderators is not recommended. Rather at this time it appears more productive to strive for conceptualizations and research on measures of adaptation beyond satisfaction. Research on moderators might better be deferred until the theoretical and empirical relations between attrition and organizational and personal satisfaction parameters have been clearly demonstrated. Research on moderating variables in general has been hampered by statistical and methodological problems and has resulted in few meaningful findings (Zedeck, 1971).

Unit Expeditious Discharges

The set of variables concerning unit expeditious discharge rates are least supported in this project. Several reasons are suggested for the lack of association:

1. The measures of unit effectiveness are highly subjective and correlate poorly with each other.
2. Rates of attrition tend to be unstable across time within battalions (O'Mara, 1979, Reference Note).
3. Expeditious discharge rates were based on the past five quarters, whereas, unit effectiveness measures were current.
4. Instances of expeditious discharge were rare (cf. Table 1) and it is difficult to predict infrequent events. Correlations between variables may have been diminished due both to restriction of range in this attrition index and differing shapes of frequency distribution curves of attrition and the other variables under consideration.

5. Perhaps attrition is better measured at the company level than at the battalion level since the commonly found correlates of it are highly variable across units within a battalion. (To the authors' knowledge no research has been reported relating, for example, levels of satisfaction within a particular company to that of the overall parent battalion satisfaction.)

Recommendations

Given the results of this preliminary research, it would be premature to make concrete recommendations for Army actions to reduce attrition or to influence satisfaction. At this stage further research which more fully operationalizes the variables is advised.

Satisfaction, job characteristics, organizational climate, and lifestyle problems were well measured. Methodological revisions are required for those variables not assessed well--unit attrition and the attitudes of the chain of command.

A longitudinal approach to this type of research is needed. Questionnaires should be given early enough in soldiers' tours so that even the most dissatisfied soldiers, who are most likely to attempt to leave the Army as quickly as possible, are included. Attrition rates could be obtained several months after the questionnaire has been administered. One could then determine the specific effects of soldiers' attitudes on their own attrition behavior rather than correlating the attitudes and behaviors of individuals in general to overall unit attrition rates.

A separate questionnaire should also be developed on the role of the chain of command. Army personnel involved in making decisions about attrition should be interviewed about: their evaluation of the troops; their awareness of the attrition problem; their views on the causes of attrition; the perceived availability of replacements; and remedial recourse available to them to manage incompetent and dissatisfied recruits.

A research project preceded by a reconsideration of the description of attrition, is needed to comprehensively evaluate the attrition approach presented. Such an effort, combining the methodological and conceptual revisions discussed, is a most appropriate direction for future investigation. Results of the current endeavor showing the prepotence of job and organizational characteristics over long life problems, marital status, coping skill, etc. should prompt future efforts to focus primarily on organizational and work dimensions rather than individual level variables.

REFERENCES

- Boyd, J. B. Interests of engineers related to turnover, selection, and management. Journal of Applied Psychology, 1961, 45, 143-149.
- Comptroller General. Urgent need for a Department of Defense marginal performer discharge program. (Report #FPCD-715-152) Washington, D.C.: U.S. General Accounting Office, 1975.
- Comptroller General. Attrition in the military--an issue needing management attention. (Report #FPCD-80-10) Washington, D.C.: U.S. General Accounting Office, 1980.
- Department of Defense. Report of the joint service administrative discharge study group. Washington, D.C.: Department of Defense, 1977-1978.
- Downs, S. Labor turnover in two public service organizations. Occupational Psychology, 1967, 41, 137-142.
- Ferguson, L. W. Life insurance interest, ability, and termination of employment. Personnel Psychology, 1958, 11, 189-193.
- Goodstadt, B. E., Yedlin, N. C., & Romanczuk, A. P. Post-training enlisted attrition processes in the U.S. Army. Washington, D.C.: Advanced Research Resources Organization, 1978.
- Greenberg, M. G., Murphy, J., & McConeghy, G. Exploratory development research of U.S. Navy/Marine Corps personnel. Phase I: Factors affecting attrition. Final Report. Arlington, VA: Booz, Allen, & Hamilton, 1977.
- Guest, R. H. A neglected factor in labor turnover. Occupational Psychology, 1955, 29, 217-231.
- Knowles, M. C. Personal and job factors in labor turnover. Occupational Psychology, 1955, 29, 217-231.
- Koch, J. L. & Steers, R. M. Job attachment, satisfaction, and turnover among public sector employees. Journal of Vocational Behavior, 1978, 11, 119-128.
- Kraut, A. I. Predicting turnover of employees from measured job attitudes. Organizational Behavior and Human Performance, 1975, 13, 233-243.
- Landau, S. B. Turnover: The relationship to various attitudinal, demographic and performance measures. Paper presented at the American Psychological Association, New York, September, 1979.
- Landau, S. G., Somer, E. P., & Lau, A. W. An approach to investigating turnover behavior of Navy personnel. Paper presented at the American Psychological Association, Toronto, August-September, 1978.
- Ley, R. Labour turnover as a function of worker differences, work environment, and authoritarianism of foremen. Journal of Applied Psychology, 1966, 50, 497-500.

- Locke, E. A. The nature and causes of job satisfaction. In M. D. Dunnette (Ed.), Handbook of industrial and organizational psychology, Chicago: Rand McNally, 1976.
- Mayeske, G. W. The validity of Kuder Preference Record scores in predicting forester turnover and advancement. Personnel Psychology, 1964, 17, 207-210.
- Miller, H. E., Katerberg, R., & Hulin, D. L. Evaluation of the Mobley, Horner, and Hollingworth Model of employee turnover. Journal of Applied Psychology, 1979, 64, 509-517.
- Minor, F. J. The prediction of turnover of clerical employees. Personnel Psychology, 1958, 11, 393-402.
- Mobley, W. H. Intermediate linkages in the relationship between job satisfaction and employee turnover. Journal of Applied Psychology, 1977, 62, 237-240.
- Mobley, W. H., Griffeth, R. W., Hand, H. H., & Meglino, B. M. Review and conceptual analysis of the employee turnover process. Psychological Bulletin, 1979, 86, 493-522.
- Mobley, W. H., Hand, H. H., & Logan, J. E. A longitudinal study of enlisted personnel attrition in the U.S. Marine Corps: Preliminary recruiting training results. In H. Wallace Sinaiko (Ed.) First term enlisted attrition. Leesburg, VA: Smithsonian Institution, April 1977.
- Mobley, W. H., Horner, S. O., & Hollingsworth, A. T. An evaluation of precursors of hospital employee turnover. Journal of Applied Psychology, 1978, 1978, 63, 408-414.
- Motowidlo, S. J., Dunnette, M. D., & Rosse, R. L. Reenlistment motivations of first-term enlisted men and women. Minneapolis: Personnel Decisions Research Institute, 1980.
- Newman, J. E. Predicting absenteeism and turnover: A field comparison of Fishbein's model and traditional job attitude measures. Journal of Applied Psychology, 1974, 59, 610-615.
- O'Mara, F. E. The organizational climate--organizational performance relationship in Army units. Alexandria, VA: U.S. Army Research Institute, 1979 (draft).
- O'Mara, F. Personal Communication, October 1979.
- Porter, L. W., Crampon, W. J., & Smith, F. J. Organizational commitment and managerial turnover: A longitudinal study. Organizational Behavior and Human Performance, 1976, 15, 87-98.
- Porter, L. W. & Steers, R. M. Organizational, work, and personal factors in employee turnover and absenteeism. Psychological Bulletin, 1973, 80, 151-176.

- Porter, L. W., Steers, R. M., Mowday, R. T., & Boulian, P. V. Organizational commitment, job satisfaction, and turnover among psychiatric technicians. Journal of Applied Psychology, 1974, 59, 603-609.
- Robinson, D. D. Prediction of clerical turnover in banks by means of a weighted application blank. Journal of Applied Psychology, 1972, 56, 282.
- Steers, R. M. Antecedents and outcomes of organizational commitment. Administrative Science Quarterly, 1977, 22, 46-56.
- Waters, L. K. & Roach, D. Job attitudes as predictors of termination and absenteeism: Consistency over time and across organizational units. Journal of Applied Psychology, 1973, 57, 341-342.
- Waters, L. K., Roach, D., & Waters, C. W. Estimate of future tenure, satisfaction, and biographical variables as predictors of termination. Personnel Psychology, 1976, 29, 57-60.
- Zedeck, S. Problems in the use of moderators. Psychological Bulletin, 1971, 76, 295-310.

APPENDIX A

SURVEY ITEMS COMPOSING MULTI-ITEM SCALES

Characteristics of the Job (Variety)

How much variety is there in your job? That is, to what extent does the job require you to do different things at work, using a variety of your skills and talents?

My job is quite simple and repetitive. (Reverse scale)

My job requires a person to use a number of complex or sophisticated skills.

Characteristics of the Job (Meaningfulness)

In general, how significant or important is your job? That is, are the results of your work likely to significantly affect the lives or well-being of other people?

My job itself is not very significant or important in the broader scheme of things. (Reverse scale)

My job is one where a lot of other people can be affected by how well the work gets done.

Characteristics of the Job (Degree of Control)

To what extent does your job permit you to decide on your own how to go about doing the work?

My job denies a person any chance to use his or her personal initiative or discretion in carrying out the work. (Reverse scale)

My job gives a person considerable opportunity for independence and freedom in how he or she does the work.

Organizational Climate (Communication)

Decisions are made in this unit at those levels where the most adequate information is available.

Workload and time factors are taken into consideration in planning our work group assignments.

Decisions are made in this unit after getting information from those who actually do the job.

Meetings in this unit generally accomplish meaningful objectives.

My unit is willing to try new or improved methods of doing work.

The information I received down through formal channels is generally accurate.

I get all the information I need about what is going on in other sections or departments in my unit.

This unit has a real interest in the welfare of assigned personnel.

Organizational Climate (Motivation)

I get a sense of accomplishment from the work I do.

I look forward to coming to work every day.

My job helps me to achieve my personal goals.

I would like to stay in this unit as long as I can.

Organizational Climate (Unit Standards)

Rules in this unit are enforced.

There is enough emphasis on competition in this unit.

This unit places a high emphasis on accomplishing the mission.

My unit is respected on this post.

Training Expectations

Is your current duty MOS the same as your primary or alternative MOS?

I enlisted in the Army to receive special training or obtain a skill.

Were you trained in the specialty you asked for when you enlisted?

Internal Coping Resources

What is your level of education?

I enlisted in the Army to obtain a steady job. (Reverse scale)

I enlisted in the Army to find out what to do with my life. (Reverse scale)

I enlisted in the Army to get away from money or financial problems. (Reverse scale)

External Coping Resources

To what extent is your supervisor friendly and easy to approach?

The senior NCOs in my unit look out for the welfare of the individual soldier in my unit.

The officers in my unit care about what happens to the individual soldier in the unit.

To what extent does your supervisor offer new ideas for solving job-related problems?

To what extent is your supervisor willing to listen to your problems?

When you talk with your supervisor, to what extent does he pay attention to what you're saying?

To what extent does your supervisor show you how to improve your performance?

To what extent does your supervisor provide the help you need so that you can schedule work ahead of time?

APPENDIX B

To appreciate the meaning of stepwise multiple correlation (R), it is helpful to contrast it with a simple Pearson product-moment correlation (r). Simple r is an index of the degree of linear relatedness between two measures, whereas R is a measure of the degree of linear relatedness between a set of variables (called predictors) and a single variable (called the criterion). For each member of this set of predictors a weight is statistically assigned on the basis of its ability to incrementally improve the prediction of variance in the criterion beyond the predictive ability of variables already entered into the equation. All predictor variables have theoretically equal likelihoods of being selected first in the equation and weighted most heavily. Subsequent selections and weightings of predictor variables are influenced by the presence and weights of all variables already chosen for the predictor equations. In fact, the weights typically diminish at each stage of building a predictor equation since increasingly larger portions of the criterion variance have already been accounted for. Stated otherwise the incremental utility of adding predictor variables declines at each stage of the analysis. While these subsequent predictor variables may have enjoyed high simple correlations with the criterion, the uniqueness of their specific correlation--and consequently the weights assigned to later variables--may be quite small since earlier predictors have already accounted for much of the variance in the criterion.

At each step, the multiple correlation coefficient, R , indicates the total relationship between all the variables so far entered into the equation and the criterion. For example, in Table 2, the simple correlation between control and job satisfaction is .44. The multiple correlation of control and variety with job satisfaction is .49. The change in R indicates the extent to which the last predictor variable has added to the accurate prediction of the criterion. Using the same example, the effect of variety on job satisfaction, independent of the effect of control, is indicated by the difference between .44 and .49.

The square of the multiple correlation coefficient, R^2 , is the percentage of variance in the criterion accounted for by the predictor variables. It is a measure of the magnitude of the relationship. The multiple correlation of combined measures of control, variety, and meaningfulness with job satisfaction is .51. Thus 26% (i.e., $.51^2$) of the variance in job satisfaction is predictable from a linear combination of these three job characteristics. In this and several later tables simple correlations are placed in parentheses following R so that one may not lose sight of the total relationship between each predictor and the criterion apart from its incremental value as a practical predictor.

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